Docket: YOR919990178US1 (8728-306)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPLICANT:	Stephane H. Maes	EXAMINER: Ho, Andy	
SERIAL NO.:	09/507,526	GROUP ART UNIT: 2194	
FILED:	February 18, 2000		
FOR:	SYSTEMS AND METHODS FOR SYNCHRONIZING MULTI-MODAL INTERACTIONS		

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Frank V. DeRosa

PATENT APPLICATION

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APPEAL BRIEF

Appeal from Group 2194

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This Appeal is from a Final Office Action mailed on November 29, 2005 (hereinafter, referred to as the "Final Action") finally rejecting claims 1-37. This Appeal was commenced by a Notice of Appeal and Pre-Appeal Brief Request for Review filed on April 11, 2006, and Appellants hereby submit this Appeal Brief in furtherance of the Appeal.

I. REAL PARTY IN INTEREST

The real party in interest for the above-identified application is International Business Machines Corporation, the assignee of the entire right, title and interest in and to the subject application by virtue of an assignment of recorded in the U.S. Patent and Trademark Office.

II. RELATED APPEALS AND INTERFERENCES

There are no Appeals or Interferences known to Applicant, Applicant's representatives or the Assignee, which would directly affect or be indirectly affected by or have a bearing on the Board's decision in the pending Appeal.

III. STATUS OF CLAIMS

Claims 1-37 are pending, stand rejected and are under appeal. The claims are set forth in the attached Appendix. Claims 1, 19 and 29 are independent claims. Claims 2-18 depend directly or indirectly from base claim 1. Claims 20-28 depend directly or indirectly from base claim 19. Claims 29-37 depend directly or indirectly from base claim 29.

IV. STATUS OF AMENDMENTS

No After Final Amendments have been filed.

V. SUMMARY OF CLAIMED SUBJECT MATTER

In general, the claimed inventions are directed to systems and methods for implementing multi-modal user interfaces (UI) and applications and, more particularly, to system and methods for enabling synchronized multi-modal user interaction with a multimodal application that is authored to have multiple mode processes to allow user interaction with the multimodal application in one, some or all of interaction modes supported by the different mode processes of the multi-modal application. For purposes of illustration, the claimed inventions will be described with reference to certain Figures and corresponding text of Appellants' Specification (hereinafter, " Spec."), for example, but nothing herein shall be deemed as a limitation on the scope of the invention.

Claim 1 recites:

A system for synchronizing multi-modal interactions, comprising:

a program storage device that stores a multi-modal application, the multi-modal application comprising at least a first mode process that enables user interaction with the application in a first modality and a second mode process that enables user interaction with the application in a second modality;

a program execution system that executes the multi-modal application and synchronizes the first and second mode processes while a user interacts with the multi-modal application, wherein the program execution system comprises:

a multi-modal shell that manages information exchanges between the first and second mode processes of the multi-modal application to enable a synchronized multi-modal

interaction with the multi-modal application wherein user interaction in one modality results in execution of corresponding commands in both the first and second mode processes; and

an API (application program interface) that allows the first and second mode processes to register their respective active commands and corresponding actions with the multi-modal shell.

An exemplary embodiment of the invention of claim 1 is illustrated by FIG. 1 and corresponding text of Appellants Spec. In particular, FIG. 1 illustrate an exemplary *system* (10) *for synchronizing multi-modal interactions* (10) (see generally, page 11, line 3 ~ p. 15, line 8). The system includes program storage device that stores a multi-modal application (12) , the multi-modal application(12) comprising at least a first mode process (12a) that enables user interaction with the application (12) in a first modality (e.g., speech interaction modality) and a second mode process (12b) that enables user interaction with the application (12) in a second modality (e.g., GUI interaction modality).(see, e.g., Spec., p. 11, line 18 ~p. 12, line 1; page 14, lines 3-16).

The system (10) includes a program execution system (18, 20, 22) that executes the multi-modal application (12) and synchronizes the first and second mode processes (12a, 12b) while a user interacts with the multi-modal application (12) (Spec. p. 14, lines 8-16). The program execution system comprises a multi-modal shell (20) that manages information exchanges between the first and second mode processes (12a, 12b) of the multi-modal application (12) to enable a synchronized multi-modal interaction with the multi-modal application (12) wherein user interaction in one modality results in execution of corresponding commands in both the first and second mode processes (see, Spec. p. 11, line 18 ~ p. 12, line 6). The program execution system comprises an API (application program interface) (18) that

allows the first and second mode processes (12a, 12b) to register their respective active commands and corresponding actions with the multi-modal shell (20). (see, e.g., Spec. p. 12, line 20~ p. 14. line 2; p. 19, lines 8-15)

Claim 2 recites:

The system of claim 1, wherein the program execution system comprises a registry having a registration table, managed by the multi-modal shell, wherein the registration table comprises a list of each of the registered commands and corresponding synchronized actions that results in both the first and second mode processes upon execution of a registered command by one of the first and second mode processes.

FIGs. 1 and 2 illustrate a registration table (28) that is managed by the multi-modal shell (20). As illustrated in FIG. 2, for example, the registration table (28) comprises a list of each of the registered commands and corresponding synchronized actions (2) that results in both the first and second mode processes (12a) and (12b) upon execution of a registered command by one of the first and second mode processes (12a, 12b) (see, e.g., Spec. p. 13, line 10 ~ p. 14, line 2; p. 21, line 7 ~ p. 22, line 7). By way of example, the registration table 28 of Fig. 1 may be considered a "two-way" registration table because of the two exemplary modalities, speech and GUI. In the illustrative embodiment of Fig. 1, the registration table 28 indicates what action results in both the speech mode process 12a and the GUI mode process 12b of the multi-modal application 12 for a given command in one modality.

Claim 12 recites:

The system of claim 1, wherein the multi-modal application is a multi-modal browser (40) *comprising a first browser application* (41) *and a second browser application* (42). (See, e.g., FIG. 4, pp. 24-27 of Spec.)

Claim 13 recites:

The system of claim 12, wherein the first browser is a GUI browser and the second browser is a speech browser. (Fig. 4 illustrates a GUI and speech browser 41 and 42)

Claim 19 recites:

A method for synchronizing multi-modal interactions, comprising the steps of (See FIGs. 2 and 3, and generally, page 21, line 7 ~ 23, line 17):

activating a multi-modal application comprising at least a first mode process (12a) *that enables user interaction with the application in a first modality and a second mode process* (12b) *that enables user interaction with the application in a second modality;*

receiving a command or event in the first modality (element 1, FIG. 2, p. 21, lines 20-23);

triggering an action by the first mode process (12a) *based on the received command or event* (element 3, FIG. 2, page *and triggering a corresponding action by the second mode process* (12a)*; and* (see, elements 2 and 3, FIG. 2, p. 22, lines 1-5)

updating application states or device states associated with the first and second mode processes (element 3, FIG. 2, p. 22, lines 5-7).

Claim 29 recites:

A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for synchronizing multi- modal interactions, the method comprising the steps of:

activating a multi-modal application comprising at least a first mode process (12a) *that enables user interaction with the application in a first modality and a second mode process* (12b) *that enables user interaction with the application in a second modality;*

receiving a command or event in the first modality (element 1, FIG. 2, p. 21, lines 20-23);

triggering an action by the first mode process (12a) *based on the received command or event* (element 3, FIG. 2, page *and triggering a corresponding action by the second mode process* (12a)*; and* (see, elements 2 and 3, FIG. 2, p. 22, lines 1-5)

updating application states or device states associated with the first and second mode processes (element 3, FIG. 2, p. 22, lines 5-7).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 1-15 and 19-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,119,147 to Hashimoto

B. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of U.S. Patent No. 6,119, 147 to Toomey.

VI. ARGUMENTS

A. The Obviousness Rejections Based on *Hashimoto* are Legally Deficient

"In rejecting claims under 35 U.S.C. Section 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness." *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993) (citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992)). It is well established that a *prima facie* showing of obviousness requires, in general, a two part analysis – starting with a claim interpretation analysis to determine the scope and substance of the subject matter being claimed, followed by an obvious analysis to determine whether the claimed subject matter (as interpreted) is obvious in view of the prior art.

More specifically, when evaluating claims, the Examiner must interpret the claims with the broadest *reasonable* interpretation that is consistent with the specification and the Examiner

cannot interpret the claim language in a vacuum, but rather the claims should be interpreted in view of the specification as it would be interpreted by one of ordinary skill in the . *See*, In re Sneed, 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983); In re Bond, 910 F.2d 831, 833, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990); In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). Once the claims have been properly constructed, the Examiner has the burden of establishing a *prima facie* case of obviousness. 'A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." *In re Bell*, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) (quoting *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976)).

It is respectfully submitted that the obviousness rejections set forth in the Final Action are legally deficient to establish a prima facie case of obviousness. Indeed, as will be explained below, the obviousness rejections are seemingly based on an improper obviousness analysis in which the Examiner fails to properly interpret the claimed subject matter, but merely reconstructs the claimed inventions by picking and choosing among different teachings of Hashimoto in an effort to meet the claim language with no due consideration given to the scope and meaning of the claim language nor proper context to the teachings of Hashimoto. In this regard, the rejections fail to set forth a legally sufficient reasoned argument as to how Hashimoto suggests the inventions of claims 1, 19 or 29 as a whole

(1) **Claim 1 is Patentable and Non Obvious over *Hashimoto***

In general, Hashimoto is directed to speech recognition interface systems that can be used simultaneously by a plurality of application programs to realize a speech I/O modality for

applications in windows-based systems (see, Col. 3, lines 28-35). Hashimoto teaches speech interfaces for GUI based operating systems using speech recognition applications for dictation and command and control. These speech applications, however, are essentially add-ons to the GUI based operating systems in the sense that such applications allow for replacement of keyboard and mouse inputs and allow a user to change the focus, launch new tasks, and give voice commands to the task in focus. In such applications, the speech interface of Hashimoto is considered merely a new additional I/O modality rather than a separate process mode of a multimodal application.

In this respect, at the very least, Appellant contends that Hashimoto does not does not teach or suggest a multi-modal application *comprising at least a first mode process that enables user interaction with the application in a first modality and a second mode process that enables user interaction with the application in a second modality,* as recited in claim 1. One fundamental flaw in the Examiner's obviousness rejections is based on the Examiner's failure to understand and properly determine the scope of the subject matter regarding a multi-modal application. In accordance with the claimed inventions, a multimodal application having first and second mode processes is properly construed as an application written for multiple modalities (e.g., the application 12 having the speech and GUI modes 12a and 12b), where when only one of the modalities is present (e.g., a GUI modality), the commands registered for the missing modalities will not be activated. An advantage, therefore, of implementing a multi-modal shell 20 is that the application developer can program a multi-modal application by including, in the first instance, all the information related to the different modalities supported by the application, and then rely on the multi-modal shell platform to manage, control and

implement the modality specific rendering and synchronization when in interaction with the user. (see, e.g., Spec. p. 14, lines 3-16).

The Examiner's obviousness analysis with respect to claim 1 is set forth on pages 2-3 of the Final Action. In an effort to show how Hashimoto discloses the claimed multi-modal application, the Examiner cites one embodiment of FIG. FIG. 6 of Hashimoto as teaching *a multi-modal application* formed by the combination of a SRS (speech recognitions system) and application programs (2), and then cites another embodiment in FIG. 56 of Hashimoto, and corresponding text (Col. 41, lines 23-25 and Col. 42, lines 37-38) as teaching that the *multimodal application comprises a first mode process and a second mode process,* and then cites other embodiments in FIGs. 17 and 66 of Hashimoto (and corresponding description in Col. 49, lines 50-63, for example) as disclosing that the first and second mode processes of the multimodal application *enable user interaction with the multimodal application in a first and second modality.*

On a fundamental level, however, Hashimoto's user interface methods as cited by the Examiner are very different from the claimed inventions. The Examiner's reliance on FIG. 6 of Hashimoto as teaching a "multi-modal application" formed by the combination of a SRS (speech recognition system) 1 and a plurality of application programs (2) is unclear, and in any event misplaced. FIG. 6 discloses an embodiment where the SRS (1) performs speech recognition functions on behalf of one or more different applications (2) by processing input speech commands using recognition vocabularies provided by each of the applications (2). Each application program (2) carries out its own processing depending on the application, according to the received recognition result (see, e.g. Col. 10, lines 26-375 Col. 12, lines 23-30).

In this regard, FIG. 6 does not disclose a "multi modal application" as contemplated by the claimed invention. At most, FIG. 6 describes user interaction with each separate application (2) in a speech modality (speech commands). The SRS (1) is merely a speech recognition system, not a "mode process" of a given multimodal application. In fact, the Examiner does not event rely on the embodiment of FIG. 6 to show a multi-modal application with first and second mode processes, but rather relies on the embodiment disclosed by Hashimoto in FIG. 56.

In particular, FIG. 56 of Hashimoto is an extended embodiment of FIG. 6 where the SRS system (1) of FIG. 6 is extended to include a speech synthesis unit (14) to enable speech outputs from the application program (2) (see, Col. 41, lines 11-27). The Examiner relies on this as teaching first and second mode processes of a multimodal application (see page 2 of the Final Action). However, at most, FIG. 56 illustrates an embodiment for implementing only one user interaction mode, i.e., speech I/O.

Notwithstanding this, the Examiner erroneously relies on FIG. 56 as teaching first and second mode processes, but seemingly acknowledges that the supposed "first and second mode processes" of FIG. 56 do not allow user interaction with the system in a first and second modality. Instead, the Examiner instead relies on other embodiments disclosed by Hashimoto in Col. 49, lines 50-63 and FIG. 17, 66 and 69-72 to show user interaction in first and second modalities.

FIG. 17 illustrates a speech recognition system (3) and a windows system (4) that can be used to control a plurality of applications (5). Although Hashimoto arguably teaches in FIG. 17 multi-modal input/output with an application (5), Hashimoto does not disclose that the application (5) is a multi-modal application with separate first and second mode processes. In

fact, the speech system (3) and window system (4) simply operate the I/O devices shared by a plurality of applications (col. 19, lines 4-16), but are not separate mode processes of a multimodal application. Moreover, FIG. 66 illustrates an example embodiment of FIG. 17 for a speech mail tool. Although the system allows multi-modal I/O functionality display or read out (speech synthesis) e-mail messages, or generate e-mails by voice (speech input) or keyboard, multi-modal .

Therefore, it is submitted that the Examiner has not sufficiently demonstrated how Hashimoto discloses *a multi-modal application comprising at least a first mode process that enables user interaction with the application in a first modality and a second mode process that enables user interaction with the application in a second modality.* Again, the I/O systems (651) and (652) in FIG. 66 are not different mode processes of a multi-modal application, as contemplated by the claimed invention. Likewise, I/O system (3) and (4) of FIG. 16 are not separate mode processes of a multi-modal application, as contemplated by the claimed inventions.

It is further submitted that Hashimoto does not disclose or suggest:

> ***a program execution system that executes the multi-modal application and synchronizes the first and second mode processes while a user interacts with the multi-modal application, wherein the program execution system comprises:***
>
> ***a multi-modal shell that manages information exchanges between the first and second mode processes of the multi-modal application to enable a synchronized multi-modal interaction with the multi-modal application wherein user interaction in one modality results in execution of corresponding commands in both the first and second mode processes; and***
>
> ***an API (application program interface) that allows the first and second mode processes to register their respective active commands and corresponding actions with the multi-modal shell.***

In an attempt to establish these claim features, the Examiner again offers an analysis by parsing the claim language into various segments in a way that allows the Examiner to cite various teachings of Hashimoto's disclosure to fit to the claim language in each parsed segment, leading to inconsistency and incoherency in the analysis.

In particular, as set forth on Page 3 of the Final Action, the Examiner relies on the embodiment in FIG. 56 of Hashimoto contending that the MPU (message processing unit) (11) is the claimed "*multi-modal shell*", but relies on a different embodiment disclosed in FIG. 66, for example, as support for Hashimoto teaching that the *multi-modal shell* manages information exchanges between the first and second mode processes of the multi-modal application to enable a synchronized multi-modal interaction with the multi-modal application wherein user interaction in one modality results in execution of corresponding commands in both the first and second mode processes. The Examiner's analysis is way off target and highly inconsistent.

In the first instance, as discussed above, the embodiment of FIG. 56 does not disclose a multimodal application have separate process modes synchronized through a multi-modal shell. In FIGs. 6 and 56, the MPU (11) controls the functions of the speech recognition unit (12) as a whole by exchanging messages between the speech recognition unit and the application programs for decoding of speech input from a user and for controlling the speech synthesis unit (14) for speech output to the user, to enable speech I/O with each of the applications (2). (see, e.g., Col. 10, lines 38-48; Col. 41, lines 27-34). In this regard, the speech I/O system (1A) of FIG. 56 merely provides a platform for implementing speech I/O interface of each of the applications (2), but there is no suggestion that the MPU (11) manages information exchanges between separate mode processes of a multi-modal application.

Moreover, FIG. 66 illustrates an exemplary embodiment having a speech I/O system (651) similar to the speech I/O system (1A) in FIG. 56 (to provide a speech I/O modality) in addition to a windows system (652) (to provide a GUI modality). Hashimoto teaches that the speech I/O system (651) is similar to that depicted in FIG. 56 (see, Col. 47 lines 18-22). In this regard, there is nothing in Hashimoto that suggests the MPU (11) in the speech I/O system (651) manages information exchanges between different mode processes of the application (653).

Therefore, there is seemingly no basis for Examiner's characterization of the MPU (11) of the speech recognition system (1A) as being *a multi-modal shell for managing and synchronizing information exchanges between the first and second mode processes of the multi-modal application to enable a synchronized multi-modal interaction with the application,* as recited in claim 1.

Moreover, the flaw in the Examiner's analysis is further evidenced by the Examiner's characterization of the message I/O unit (21) of each application (2) being essentially an ***API (application program interface) that allows the first and second mode processes to register their respective active commands and corresponding actions with the multi-modal shell.*** In FIGs. 6 and 11, the message I/O unit (21) of an application (2) enables allows the application program (22) to exchange messages with the MPU (11) of the SRS (1).

The Examiner previously contended that FIG. 6 of Hashimoto teaches a "multi-modal application" formed by the combination of a SRS (speech recognition system) 1 and a plurality of application programs (2). So what the Examiner now contends is the MPU (11) is a multimodal shell, where the speech I/O interface (21) is an *API* that allows the first (SRS) mode process and second mode process (2) *to register their respective active commands and corresponding actions*

with the *MPU* (11). However, the flaw with this argument is that Hashimoto does not remotely teach or suggest that the API (21) of the application program (2) provides means allowing the SRS (1) (purported "mode process") to register its commands with the MPU (11) (purported "multi-modal shell").

For at least above reasons, the teachings of Hashimoto as cited by the Examiner are legally insufficient to establish a prima facie case of obviousness against claim 1.

2. **Claim 2 is Patentable and Non Obvious over *Hashimoto***

Appellant submit that the Examiner has failed to show how Hashimoto teaches or suggests a ***program execution system comprises a registry having a registration table, managed by the multi-modal shell, wherein the registration table comprises a list of each of the registered commands and corresponding synchronized actions that results in both the first and second mode processes upon execution of a registered command by one of the first and second mode processes***

On page 4 of the Final Action, the Examiner contends that the subject matter of claim 2 is met by Hashimoto's teaching in FIG. 56 of a program management table (13) as being the claimed "registration table" which is managed by the MPU (11) (which Examiner interprets as the claimed "multi-modal shell"). Although Hashimoto arguably teaches that the PMT (13) stores a recognition vocabulary for a speech input and a destination application (2) for sending the recognition result (see, Col. 10, lines 48-57), there is nothing in Hashimoto that suggests that the PMT (13) ***comprises a list of each of the registered commands and corresponding synchronized actions that results in both the first and second mode processes upon execution of a registered command by one of the first and second mode processes.*** Indeed, as explained

above, the PMT (13) at most stores data related to implement a speech interface for each application (2). It is simply bewildering how the Examiner could interpret this PMT (13) as storing lists of registered commands and corresponding synchronized actions for two separate process modes of an application, and the explanation given on page 4 in this regard is unintelligible.

3. **Claims 12 and 13 are Patentable and Non Obvious over *Hashimoto***

Appellant submit that the Examiner has failed to show how Hashimoto teaches that the *multi-modal application is a multi-modal browser comprising a first browser application and a second browser application*, as recited in claim 12, much less ***wherein the first browser is a GUI browser and the second browser is a speech browser,*** as recited in claim 13.

On page 6 of the Final Action, the Examiner contends that FIG. 56 of Hashimoto teaches a multimodal application (1A) is a multi-modal browser (mail browser, in FIG. 27) comprising first and second browser applications (multiple application programs (2) in FIG. 7).

Again, the basis for this finding is confusing and unintelligible. It is untenable to characterize the speech I/O system (1A) of FIG. 56 as being a "multi-modal application", much less a multi modal browser comprising first and second browser applications. At the very least, a mail tool client (e.g., Microsoft Outlook) is not considered a browser application (e.g., Internet Explorer, etc.) to one of ordinary skill in the art.

Moreover, the Examiner's argument seems to suggest that the SRS system (1A) comprises a first and second browser application (as provided by multiple applications (2)). At the very least, FIG. 6 discloses that the application programs (2) are separate programs which carry out its own processing depending on its application. There is simply no basis for the

Examiner to contend that Hashimoto teaches the applications (2) in FIG. 6 are first and second browser applications of a multimodal browser application.

4. **Claims 19 and 29 are Patentable and Non Obvious over *Hashimoto***

Appellant respectfully submit that claims 19 and 29 are patentable and non-obvious over Hashimoto for similar reasons give above for claim 1. For instance, Hashimoto does not disclose or suggest *activating a multi-modal application comprising at least a first mode process that enables user interaction with the application in a first modality and a second mode process that enables user interaction with the application in a second modality*, as recited in claims 19 and 29. The crux of the Examiner's rejection of claims 19 and 29 is similar to claim 1 at least for the above claim limitations. Accordingly, Appellants previous arguments for claim 1 are applicable in this regard.

The remaining arguments set forth by the Examiner are unintelligible For example, the Examiner states on page 5 of the Final Action that Hashimoto teaches:

> **receiving a command (speech input, line 14, column 41) in a first modality (speech recognition interface system, line 13 column. 41);**
>
> **triggering an action (speech output, line 19, column 41) in the first mode process based on the received command (speech recognition interface system, line 13 column 14) and triggering a corresponding action (the mail is opened when the user saying "yes, lines 54-60 column 25) by the second mode process (application program, lines 41-42 column 42).**

The flaws with this argument are that the Examiner relies on FIG. 56 which illustrates only a Speech I/O modality (single interaction modality) and that the Examiner's argument is based on a strained parsing and interpretation of the claim language as applied to different

embodiments in Hashimoto. Moreover, the Examiner's argument is erroneously based on the Examiner's belief that the speech recognition system provides a *first mode process* of a multi-modal application, and the that application programs provide *a second mode process* of the multimodal application, which is an improper interpretation as applied to the claimed inventions as discussed above.

Most tellingly, the Examiner acknowledges that Hashimoto does not disclose updating application state associated with the first mode process. This underscores the fact that Hashimoto does not teach interaction with a multi-modal application with synchronized first and second mode processes. Indeed, when interacting with a multimodal application in two modalities, the application states for each of the mode processes must be updated in synchronization to maintain the separate mode processes in the proper current context of the dialog.

Accordingly, for at least the above reasons, the Final Office Action fails to present a prima facie case of obviousness against claims 1, 2, 12, 13 19 and 29 based on Hashimoto.

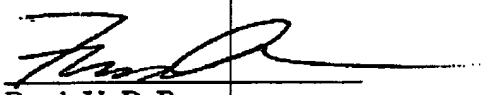
B. The Obviousness Rejections Based on *Hashimoto* and *Toomey* are Legally Deficient

Further, with respect to the rejection of claim 16-18 based on the combination of Hashimoto and Toomey, such combination is believed to be legally deficient at least to the extent that Hashimoto does not disclose or suggest the inventions of claim 1, from which claims 16-18 depend. Furthermore, with no elaboration necessary, Toomey clearly does not cure the deficiencies of Hashimoto with regard to claim 1 as discussed above.

C. Conclusion

Accordingly, for at least the above reasons, it is respectfully requested that the Board reverse all claim rejections under 35 U.S.C. §103.

Respectfully submitted



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Claims Appendix

1. A system for synchronizing multi-modal interactions, comprising:

a program storage device that stores a multi-modal application, the multi-modal application comprising at least a first mode process that enables user interaction with the application in a first modality and a second mode process that enables user interaction with the application in a second modality;

a program execution system that executes the multi-modal application and synchronizes the first and second mode processes while a user interacts with the multi-modal application, wherein the program execution system comprises:

a multi-modal shell that manages information exchanges between the first and second mode processes of the multi-modal application to enable a synchronized multi-modal interaction with the multi-modal application wherein user interaction in one modality results in execution of corresponding commands in both the first and second mode processes; and

an API (application program interface) that allows the first and second mode processes to register their respective active commands and corresponding actions with the multi-modal shell.

2. The system of claim 1, wherein the program execution system comprises a registry having a registration table, managed by the multi-modal shell, wherein the registration table comprises a list of each of the registered commands and corresponding synchronized actions that results in both the first and second mode processes upon execution of a registered command by one of the first and second mode processes.

3. The system of claim 1, wherein the multi-modal application comprises at least a first mono-mode application for the first mode process and a second mono-mode application for the second mode process, wherein the multi-modal shell manages and synchronizes information exchanges between the first and second mono-mode applications.

4. The system of claim 1, further comprising at least a first device having a first user interface modality and a second device having a second user interface modality, wherein the

multi-modal shell manages and synchronizes information exchanges between the first and second devices.

5. The system of claim 4, wherein the first device, second device and multi-modal shell are distributed over a network, and wherein the API is implemented using distributed APIs or protocols.

6. The system of claim 2, wherein the API comprises a mechanism for converting a mono-mode application to a multi- modal application.

7. The system of claim 6, wherein the mono-mode application is a GUI application, and wherein the mechanism provides speech enablement of the GUI application by registering the active commands of the GUI application and building a grammar for the registered commands to support the commands in a speech modality.

8. The system of claim 2, wherein the API comprises a mechanism for building a multi-modal application.

9. The system of claim 8, wherein the mechanism is used for directly programming the registry by building a registration table having user-defined commands and corresponding actions for each of the modalities of the multi-modal application.

10. The system of claim 1, further comprising an operating system, wherein the multi-modal shell executes on top of the operating system.

11. The system of claim 1, wherein the system is distributed over a network.

12. The system of claim 1, wherein the multi-modal application is a multi-modal browser comprising a first browser application and a second browser application.

13. The system of claim 12, wherein the first browser is a GUI browser and the second browser is a speech browser.

14. The system of claim 12, wherein the multi-modal shell processes the multi-modal application to send modality-specific presentation information to the respective browsers.

15. The system of claim 14, wherein the multi-modal application is authored using a modality-independent description and wherein the multi-modal shell generates the modality-specific presentation information from the modality-independent description.

16. The system of claim 14, wherein the multi-modal application comprises a combination of declarative markup languages to describe the first and second mode processes.

17. The system of claim 16, wherein the multi-modal application combines the declarative markup languages and synchronization elements in single pages to provide tight synchronization between the first and second mode processes.

18. The system of claim 16, wherein the multi-modal application comprises a separate files of the declarative markup languages for the first and second mode processes and wherein the separate files are loosely synchronized at predefined points.

19. A method for synchronizing multi-modal interactions, comprising the steps of:

activating a multi-modal application comprising at least a first mode process that enables user interaction with the application in a first modality and a second mode process that enables user interaction with the application in a second modality

receiving a command or event in the first modality;

triggering an action by the first mode process based on the received command or event and triggering a corresponding action by the second mode process; and

updating application states or device states associated with the first and second mode processes.

20. The method of claim 19, further comprising the steps of:

registering active commands associated with the first mode process and active commands associated with the second mode process;

associating, with each registered command of the first mode process, an action on the first mode process and a corresponding action on the second mode process; and

associating, with each registered command of the second mode process, an action on the second mode process and a corresponding action on the first mode process.

21. The method of claim 20, further comprising the step of building a command-to-action registration table based on the registered commands and actions.

22. The method of claim 21, wherein the registration table is built by a multi-modal shell via API calls from the applications or devices associated with the first and second mode processes.

23. The method of claim 20, wherein the step of triggering comprises the steps of:

looking up the received command in the registration table; and

executing the actions associated with the received command by the first and second mode processes.

24. The method of claim 20, further comprising the steps of:

registering a callback handle for each of the registered commands to notify the first and second mode processes of completion of the actions corresponding to the registered commands.

25. The method of claim 24, wherein the step of updating the application states or the device states comprises the steps of executing the callback handle associated with the received

command to trigger a callback action on the first mode process and a callback action on the second mode process.

26. The method of claim 19, wherein the step of triggering comprises the steps of:

executing first thread associated with the received command; and

triggering a corresponding second thread to initiate the corresponding action by the second mode process.

27. The method of claim 26, wherein the threads are applets.

28. The method of claim 26, wherein the threads communicate via socket connections.

29. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for synchronizing multi-modal interactions, the method comprising the steps of:

activating a multi-modal application comprising at least a first mode process that enables user interaction with the application in a first modality and a second mode process that enables user interaction with the application in a second modality

receiving a command or event in the first modality;

triggering an action by the first mode process based on the received command or event and triggering a corresponding action by the second mode process; and

updating application states or device states associated with the first and second mode processes.

30. The program storage device of claim 29, further comprising instructions for performing the steps of:

registering active commands associated with the first mode process and active commands associated with the second mode process;

associating, with each registered command of the first mode process, an action on the first mode process and a corresponding action on the second mode process; and

associating, with each registered command of the second mode process, an action on the second mode process and a corresponding action on the first mode process.

31. The program storage device of claim 30, further comprising instructions for performing the step of building a command-to-action registration table based on the registered commands and actions.

32. The program storage device of claim 30, wherein the instructions for performing the step of triggering comprise instructions for performing the steps of:

looking up the received command in the registration table; and

executing the actions associated with the received command by the first and second mode processes.

33. The program storage device of claim 30, further comprising instructions for performing the steps of:

registering a callback handle for each of the registered commands to notify the first and second mode processes of completion of the actions corresponding to the registered commands.

34. The program storage device of claim 33, wherein the instructions for performing the step of updating the application states or the device states comprise instructions for performing the step of executing the callback handle associated with the received command to trigger a callback action on the first mode process and a callback action on the second mode process.

35. The program storage device of claim 29, wherein the instructions for performing the step of triggering comprise instructions for performing the steps of:

executing first thread associated with the received command; and

triggering a corresponding second thread to initiate the corresponding action by the second mode process.

36. The program storage device of claim 35, wherein the threads are applets.

37. The program storage device of claim 35, wherein the threads communicate via socket connections.

Evidence Appendix

There is no evidence submitted pursuant to 37 CFR §§ 1.130, 1.131 or 1.132 or any other evidence entered by the examiner and relied upon by appellant in this Appeal.

Related Proceedings Appendix

None.